

IN THE CLAIMS:

Substitute the following claims for the pending claims having the same numbers.

1-15. (canceled)

16. (previously presented) A method of selectively blocking or delaying a downhole event, the method comprising the steps of;

connecting a housing containing a piston in such a manner that completion of said downhole event is dependent on said piston arriving at a given location within said housing;

disposing a magnetorheological fluid within said housing in such a manner that said piston is impeded from moving toward said given location; and

creating a magnetic field through at least a portion of said magnetorheological fluid, the magnetic field being of sufficient magnitude to slow, but not stop, movement of said piston through said magnetorheological fluid.

17-55. (canceled)

56. (previously presented) A system for controlling operation of at least one well tool, the system comprising:

a string including the well tool deployed in a borehole;

a housing of the well tool, the housing containing a piston;

a magnetorheological fluid disposed within said housing;
and

a magnetic assembly including a working gap having a first magnetic field strength, and a reluctance gap having a second magnetic field strength capable of switchably changing said first magnetic field strength, said second magnetic field strength passing through said housing,

wherein blockage of a flow of magnetorheological fluid through said housing by said first magnetic field strength impedes movement of said piston.

57. (previously presented) The system of claim 56, wherein total blockage of said flow stops movement of said piston.

58. (previously presented) The system of claim 56, wherein partial blockage of said flow slows movement of said piston.

59. (previously presented) The system of claim 56, wherein said magnetic assembly comprises a permanent magnet and an electromagnet, and wherein said first magnetic field strength and said second magnetic field strength result from a lack of current in said electromagnet.

60. (previously presented) The system of claim 56, wherein said magnetic assembly comprises an electromagnet, and wherein said first magnetic field strength and said second

magnetic field strength result from a current in said electromagnet.

61. (previously presented) The system of claim 56, wherein said piston is held immobile by a lack of current in said magnetic assembly, thereby providing a safety lock.

62. (previously presented) A fluid control device used in a borehole, the device comprising:

a housing containing a piston;

a magnetorheological fluid disposed within said housing;
and

a magnetic assembly capable of switchably creating a magnetic field which passes through said housing,

wherein said magnetic field is switchably created by a selected one of a short circuit and an open circuit, and

wherein blockage of a flow of magnetorheological fluid through said housing by said magnetic field impedes movement of said piston.

63. (previously presented) The device of claim 62, wherein said open circuit is created by a hydraulic pressure.

64. (previously presented) The device of claim 62, wherein said open circuit is created by a mechanical force.

65. (previously presented) The device of claim 62, wherein said short circuit is created by a hydraulic pressure.

66. (previously presented) The device of claim 62,
wherein said short circuit is created by a mechanical force.

67. (previously presented) The device of claim 62,
wherein total blockage of said flow stops movement of said
piston.

68. (previously presented) The device of claim 62,
wherein partial blockage of said flow slows movement of said
piston.

69. (previously presented) The device of claim 62,
wherein said magnetic assembly comprises a permanent magnet, and
wherein a lack of current in said magnetic assembly generates
said magnetic field.

70. (previously presented) The device of claim 62,
wherein said piston is held immobile by a lack of current in
said magnetic assembly, thereby providing a safety lock.

71. (previously presented) The device of claim 62,
wherein movement of said piston is controlled to provide a time-
delay device.

72-96. (canceled)

97. (currently amended) A firing head for use in a well, the firing head comprising:

a magnetic assembly;

a magnetorheological fluid; and

a firing piston, the firing piston being prevented from displacing when the magnetic assembly applies a magnetic field having a strength level to the magnetorheological fluid,

wherein the magnetic field has an altered strength level at which the magnetic field does not impede flow of the magnetorheological fluid, thereby permitting displacement of the firing piston, and

wherein the altered strength level is produced by at least one of displacement of a portion of a magnetic circuit of the magnetic assembly and transfer of the magnetic field relative to a reluctance gap.

98. (previously presented) The firing head of claim 97, wherein the firing head is connected to a perforating gun.

99. (currently amended) ~~The firing head of claim 97, A~~ firing head for use in a well, the firing head comprising:

a magnetic assembly;

a magnetorheological fluid; and

a firing piston, the firing piston being prevented from displacing when the magnetic assembly applies a magnetic field having a strength level to the magnetorheological fluid,

wherein the magnetic field has an altered strength level at which the magnetic field impedes, but does not completely stop,

flow of the magnetorheological fluid, thereby slowing displacement of the firing piston.

100. (previously presented) The firing head of claim 99, wherein the altered strength level is produced by current in an electromagnet of the magnetic assembly.

101. (previously presented) The firing head of claim 99, wherein the altered strength level is produced by a lack of current in an electromagnet of the magnetic assembly.

102. (previously presented) The firing head of claim 99, wherein the altered strength level is produced by displacement of a portion of a magnetic circuit of the magnetic assembly.

103. (previously presented) The firing head of claim 99, wherein the altered strength level is produced by transfer of the magnetic field relative to a reluctance gap.

104-108. (canceled)

109. (currently amended) ~~The firing head of claim 97, A~~
firing head for use in a well, the firing head comprising:

a magnetic assembly;

a magnetorheological fluid; and

a firing piston, the firing piston being prevented from displacing when the magnetic assembly applies a magnetic field having a strength level to the magnetorheological fluid,

wherein a decrease in the magnetic field strength level applied to the magnetorheological fluid permits a valve to open, thereby applying increased pressure to the firing piston.

110. (previously presented) The firing head of claim 97, wherein a decrease in the magnetic field strength level applied to the magnetorheological fluid releases the firing piston from a restraint, thereby permitting the firing piston to displace.

111. (previously presented) The firing head of claim 97, wherein a decrease in the magnetic field strength level permits the firing piston to displace, thereby firing the firing head.